

09436387-10899

17. A bullet of the type fired from a pistol or rifle that includes an on-board laser guidance system for altering and directing the flight of the bullet along a trajectory, to a target that is identified by a laser beam projecting onto the target, the bullet comprising:

- at least one laser beam detector mounted on the bullet for detecting the reflection of the laser beam off the target, and producing signals that generally indicate whether the laser beam detector is oriented to detect the reflection of the laser beam off the target,
- a logic circuit mounted on the bullet and coupled to the laser beam detector for receiving the signals from the laser beam detector and producing corrective signals that are indicative of the degree of bullet reorientation required to position the laser beam detector such that it detects a reflection of the laser beam off the target,
- a steering controller mounted on the bullet and coupled to the logic circuit for receiving the corrective signals and utilizing the corrective signals to alter the flight path of the bullet so as to position the laser detector such that it detects the reflection of the laser beam off the target, and
- a power supply contained within the bullet for providing power to the laser beam detector, logic circuit and the steering controller.

18. The bullet of claim 17 wherein the bullet is provided with a plurality of symmetrically disposed laser beam detectors, and wherein the steering controller during the flight of the bullet continues to reorient the bullet such that the signals produced by the plurality of laser beam detectors are generally equal.

19. The bullet of claim 18 wherein the bullet includes three laser beam detectors.

20. The bullet of claim 17 wherein the bullet includes a longitudinal axis and a plurality of laser beam detectors symmetrically disposed about the longitudinal axis, and wherein each laser beam detector produces a signal that is directed to the logic circuit and wherein the steering controller acts to reorient the bullet such that each of the plurality of laser beam detectors detect the reflection of the laser beam off the target.

21. The bullet of claim 17 wherein the steering controller acts to reorient the bullet such that the bullet will strike the target.

22. The bullet of claim 20 wherein the plurality of laser beam detectors includes three separate laser beam detectors disposed in a plane that lies generally perpendicular to the longitudinal axis of the bullet and wherein the

steering controller acts to reorient the bullet such that each of the three laser beam detectors detect the reflection of the laser beam off the target.

23. The bullet of claim 20 including one or more control surfaces, and wherein the steering controller is operative to actuate the control surface in order to alter the flight path of the bullet.

24. A bullet adapted to be fired from a pistol or rifle and which includes an onboard laser guided system for altering and directing the flight of the bullet along a trajectory to a target that is identified by a laser beam projecting onto the target, the bullet comprising:

- a. an elongated housing having a longitudinal axis;
- b. at least three laser beam detectors mounted on the bullet for detecting the reflection of laser beam off the target and producing signals that generally indicate whether each respective laser beam detector is oriented to detect the reflection of the laser beam of the target;
- c. the at least three laser beam detectors being generally transversely aligned and generally uniformly spaced about the longitudinal axis of the housing;
- d. a logic circuit mounted on the bullet and coupled to the laser beam detectors for receiving the signals from the laser beam

detectors and producing corrective signals that are indicative of the degree of bullet reorientation required to position the laser beam detectors such that they detect a reflection of the laser beam off the target;

- e. a steering controller mounted on the bullet and coupled to the logic circuit for receiving the corrective signals and utilizing the corrective signals to alter the flight path of the bullet so as to position the laser beam detectors such that they detect the reflection of the laser beam off the target; and
- f. a power supply contained within the bullet for providing power to the laser beam detectors, logic circuit and the steering controller;

25. The bullet of claim 24 wherein during the flight of the bullet, the steering controller acts to reorient the bullet such that the signals produced by the laser beam detectors are generally equal.

26. A method of guiding a bullet fired from a pistol or rifle comprising:

- a. identifying a target by directing a laser beam onto the target and aiming the bullet at the target;
- b. firing the bullet at the target;

- 911
- c. during the flight of the bullet, utilizing at least one laser beam detector for detecting the reflection of the laser beam of the target;
  - d. generating electrical signals that generally indicate whether the at least one laser beam detector is oriented to detect the reflection of the laser beam off the target;
  - e. producing corrective signals that are indicative of the degree of bullet reorientation required to position the at least one laser beam detector such that it detects a reflection of the laser beam of the target;
  - f. directing the corrective signals to a steering controller disposed on the bullet and utilizing the corrective signals to actuate the steering controller so as to alter the path of the bullet in such a fashion that the at least one laser detector detects the reflection of the laser beam off the target; and
  - g. supplying on board power to the bullet for powering the at least one laser detector and the steering controller.

27. The method of claim 26 wherein the bullet includes a housing having a longitudinal axis and wherein there is provided at least three laser beam detectors mounted on the housing and generally transversely aligned and uniformly spaced around the longitudinal axis.

28. The method of claim 27 wherein the steering controller continues to reorientate the bullet such that all three laser beam detectors detect the reflection of the laser beam off the target.

29. The method of claim 28 wherein the steering controller continues to reorient the bullet such that the signals generated by the laser beam detectors are equal.

30. A method of generating signals on board a pistol or rifle bullet that

indicates the general orientation of the bullet relative to a target comprising:

sensing the reflection of light reflected off the target by at least two light detectors carried on the bullet;

each light detector generating an electrical signal that is a function of the intensity of the reflected light sensed by that light detector; and

comparing, on board the bullet, the electrical signals of each light detector and producing an output signal that is a function of the bullet reorientation required to cause the generated electrical signals to approximate or equal each other.

31. The method of claim 30 wherein at least three separate and distinct electrical signals are generated on board the bullet and wherein each

electrical signal is compared with the other two electrical signals to produce a single output signal.

19  
32. A pistol or rifle bullet having an onboard system for determining the orientation of the bullet with respect to a target comprising:  
at least two light detectors carried on board the bullet for sensing light reflected off the target and each light detector generating an electrical signal that is a function of the intensity of the reflected light sensed; and  
an onboard logic circuit for comparing the electrical signals of each light detector and producing an output signal that is a function of the reorientation of the light detectors required to cause the generated electrical signals of the light detectors to approach or equal each other.

09436387-110899